Forest Insect & Disease Management

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FOREST TENT CATERPILLAR EGG MASS SURVEY ON THE CHIPPEWA AND SUPERIOR NATIONAL FORESTS

1978

by

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INTRODUCTION

The forest tent caterpillar, Malacosoma disstria Hübner, outbreak in northern Minnesota resulted in over a million acres of defoliation in 1977. A cooperative survey by the Minnesota Department of Natural Resources and the USDA Forest Service was made in December 1977 and January 1978 so that land managers could be cognizant of the likely intensity and extent of defoliation in the spring of 1978.

OBJECTIVE

The objective of the survey was to predict the approximate location and intensity of defoliation of aspen by forest tent caterpillar in 1978..

METHOD

A ground survey consisted of 11 temporary plots on the Superior National Forest and 9 similar plots on the Chippewa National Forest. Additional plots were surveyed on adjacent State and private land by State personnel. Each plot consisted of 3 aspen trees (Populus spp.); the DBH was measured, the trees felled, and all new egg masses of the forest tent caterpillar were counted and collected. Defoliation intensity for each plot was predicted according to the Manitoba survey method which is based on the number of egg masses in relation to tree diameter (personal communication, A. E. Campbell to Gerald Hecht, 1977). The expected level of defoliation in 1978 was read from the graph (Fig. 1). The expectation which could be affected by parasitism, cold spring rains, or a spring frost applies to the sample stand only. More intensive surveys

NORTHEASTERN AREA, STATE & PRIVATE FORESTRY
USDA FOREST SERVICE, UPPER DARBY, PA 19082

would be needed to separate areas of differing defoliation levels expected. Severe defoliation equates with the loss of all leaves of most hardwood trees, and light defoliation corresponds with the loss of some leaves by poplar trees. Moderate defoliation means most poplars will be between 20 and 80 percent defoliated but most other hardwoods will not be fed upon. Nancy Lorimer of the North Central Forest Experiment Station will determine egg viability and egg parisitism of the collected eggs.

RESULTS

Sample trees DBH ranged from 2.1 inches to 10.5 inches with an average of 5.1 inches.

Egg masses were found on 9 of the 20 plots. Only two areas of the Superior National Forest, Aurora and Kawishiwi Ranger Districts, are expected to suffer severe defoliation by forest tent caterpillar in 1978 (Table 1). No heavy defoliation is expected east of county route 2 or north of Ely. Some defoliation can be expected on the Chippewa National Forest near Black Duck, but it is expected to be light or patchy.

CONCLUSION

The forest tent caterpillar outbreak will continue in 1978. Defoliation by this insect will be of little significance on the Chippewa National Forest and will be confined to a small area of the Superior National Forest.

Table 1. -- Defoliation level expected in 1978, forest tent caterpillar egg mass survey, 1977-1978.

National Forest	Defoliation Expected		Mean Egg Masses/ Plot	Plot Location		
	Light	Severe		T	R	S
Superior		X	32.0	57N	12W	27
	X		1.0	56N	11W	12
	X		0.3	60N	10W	32
	X		1.7	60N	18W	19
	X		1.0	65N	16W	06
	X		0.7	65N	13W	35
		X	28.0	61N	13W	13
	X		0.0	59N	8W	02
	X		0.0	61N	8W	35
	X		0.0	62N	1E	08
	X		0.0	60N	4W	07
Chippewa	X		0.0	149N	27W	15
	X		0.0	141N	26W	03
	X		0.3	143N	28W	25
	X		0.0	145N	29W	21
	X		1.3	149N	31W	26
	X		0.0	58N	26W	34
	X		0.0	59N	27W	22
	X		0.0	149N	26W	18
	X		0.0	146N	26W	7

Fig. 1 -- Forest tent caterpillar egg mass survey - defoliation prediction
(From Canadian Forestry Service, Winnipeg, Manitoba)

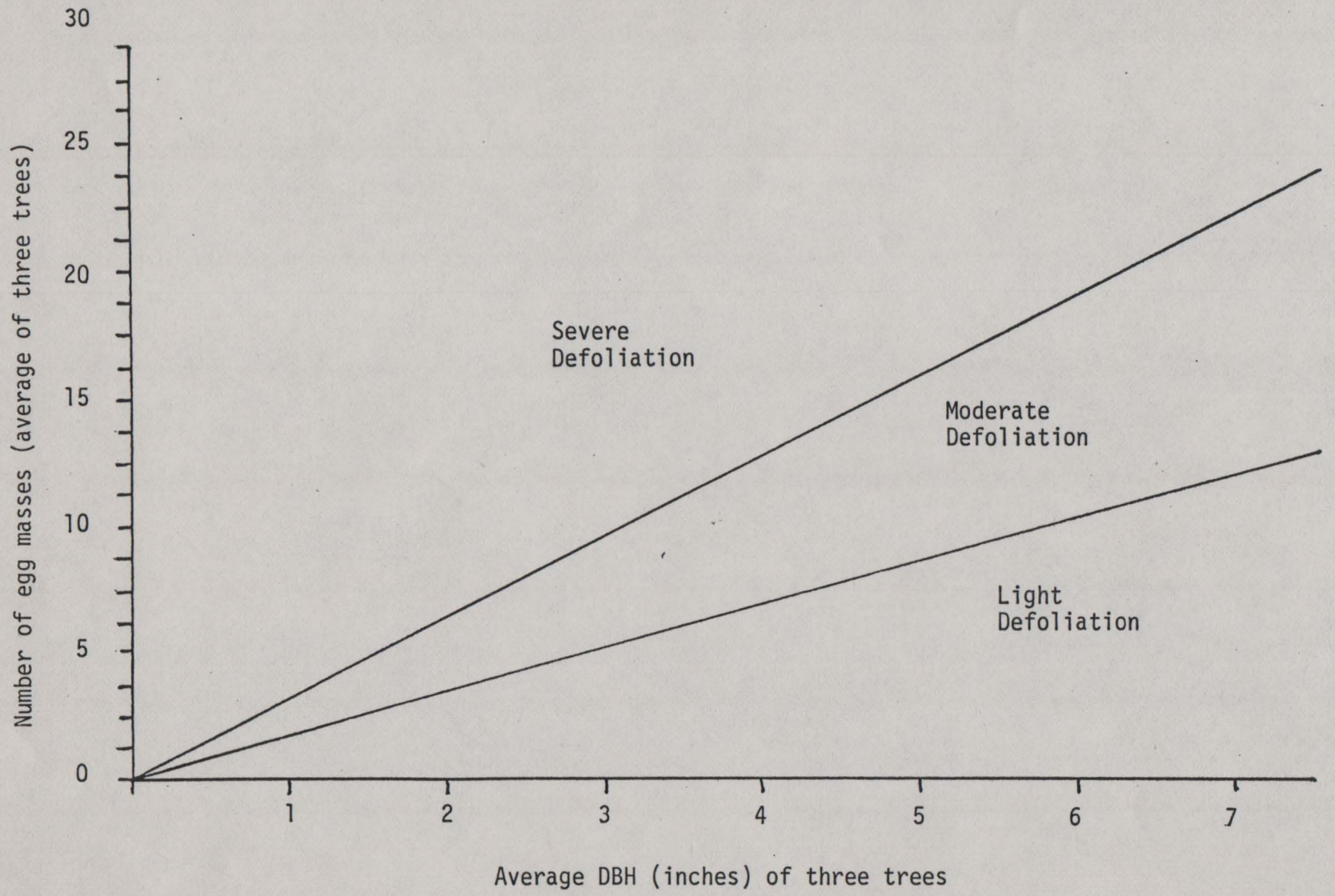
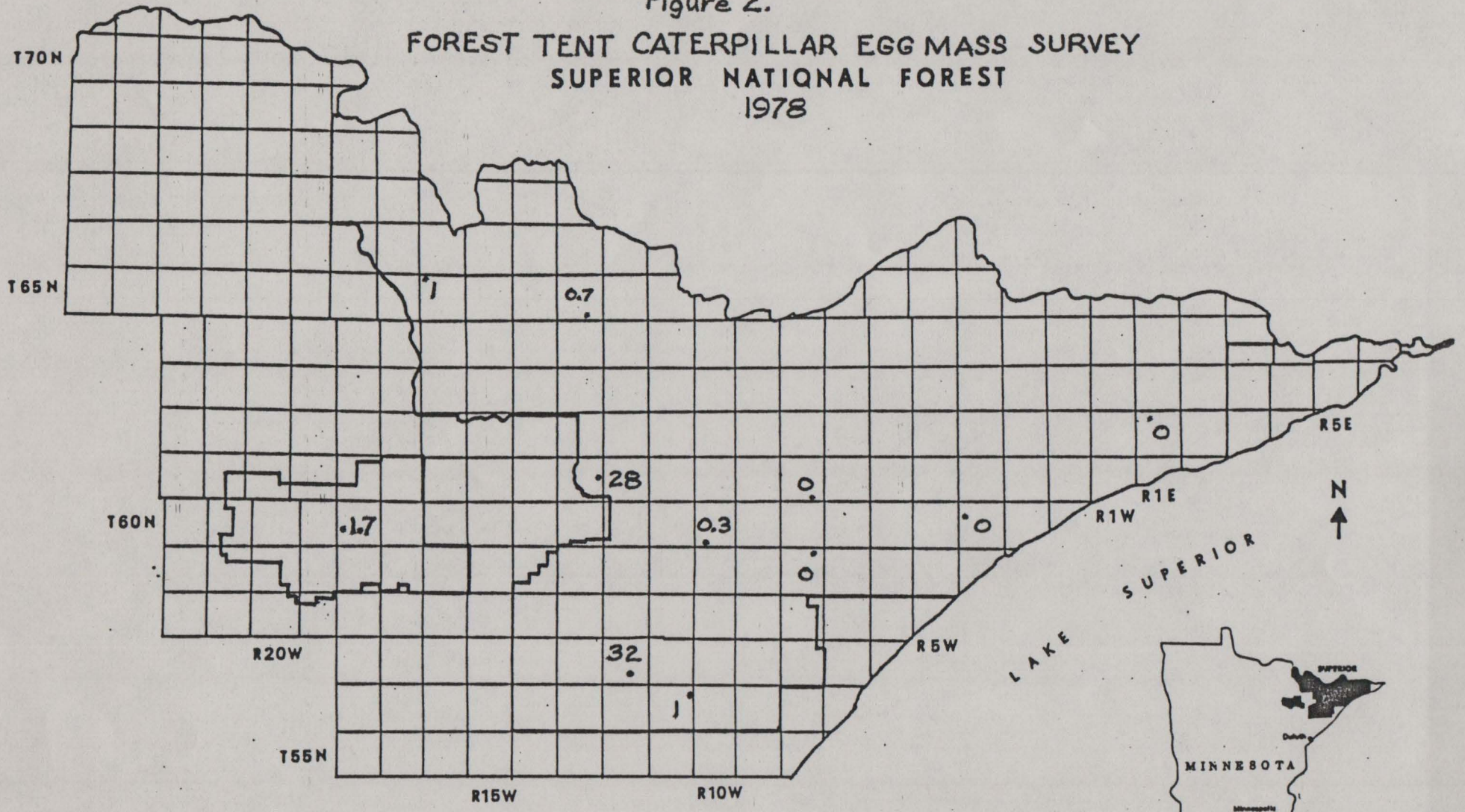


Figure 2.

FOREST TENT CATERPILLAR EGG MASS SURVEY
SUPERIOR NATIONAL FOREST
1978



CHIPPEWA NATIONAL FOREST

MINNESOTA
4th & 5th PRINCIPAL MERIDIAN

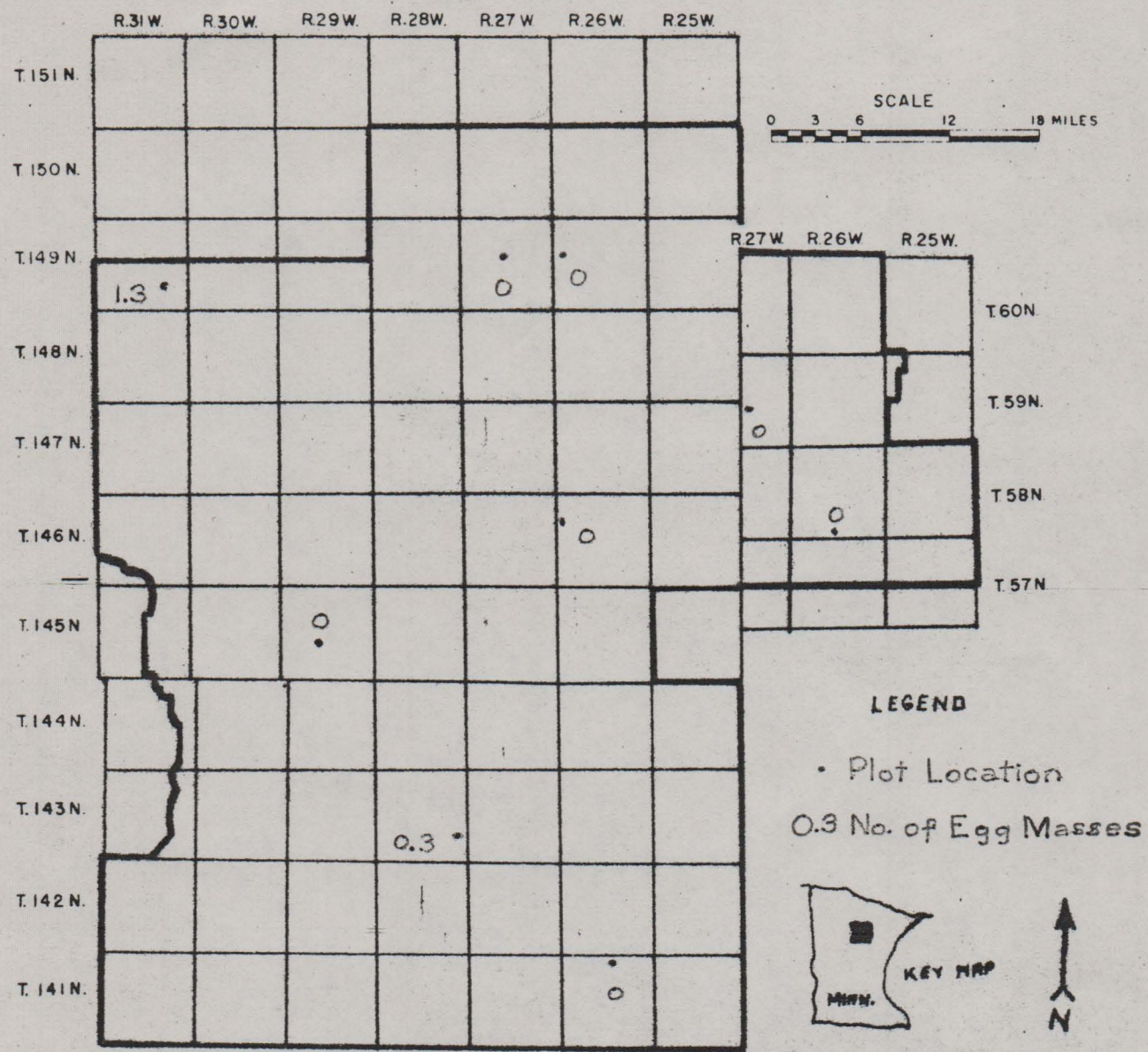


Figure 3.
FOREST TENT CATERPILLAR EGG MASS SURVEY

1978